

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (previously presented) A magnetic memory comprising:

a substrate;

a lower portion structure provided on or above said substrate as a portion of a magnetic element, said lower portion structure of said magnetic element comprising

a first magnetic film;

an upper portion structure provided on said lower portion structure of said magnetic element, said upper portion structure of said magnetic element comprising a second magnetic film; and

a sidewall insulating film provided to surround said upper portion structure of said magnetic element;

wherein the lower portion structure has an outer circumference that is the same as an outer circumference of a bottom of the sidewall insulating film.

2. (canceled)

3. (previously presented) The magnetic memory according to claim 1, wherein said lower portion structure of said magnetic element further comprises a conductive portion, the first magnetic film being provided on or above said conductive portion,

and

said upper portion structure of said magnetic element comprises an insulating film, the second magnetic film being provided on said insulating film.

4. (previously presented) A magnetic memory comprising:
a substrate;

a lower portion structure provided on or above said substrate as a portion of a magnetic element, said lower portion structure of said magnetic element comprising a conductive portion;

an upper portion structure provided on said lower portion structure of said magnetic element, said upper portion structure of said magnetic element comprising:

a first magnetic film;

an insulating film formed on or above said first magnetic film; and

a second magnetic film provided on or above said insulating film; and

a sidewall insulating film provided to surround said upper portion structure of said magnetic element;

wherein the lower portion structure has an outer circumference that is the same as an outer circumference of a bottom of the sidewall insulating film.

5. (previously presented) The magnetic memory according to claim 1, wherein said upper portion structure of said magnetic

element further comprises:

a conductive film formed on said second magnetic film.

6. (previously presented) The magnetic memory according to claim 1, wherein a plane shape of said upper portion structure of said magnetic element is any one of an oval, a cycloid, a rectangle, a hexagon, and a corner quadrangle.

7. (previously presented) The magnetic memory according to claim 1, wherein a distance d on a plane between an outer circumference of an upper surface of said lower portion structure of said magnetic element and an outer circumference of an upper surface of said upper portion structure of said magnetic element has a relation of $0.01 \mu\text{m} \leq d \leq 0.2 \mu\text{m}$.

8. (previously presented) The magnetic memory according to claim 1, further comprising:

an interlayer insulating film formed to cover said lower portion structure of said magnetic element, said sidewall insulating film, and said upper portion structure of said magnetic element,

said interlayer insulating film has a via-contact connected with said upper portion structure of said magnetic element, and

said sidewall insulating film is formed of a material which has an etching selection ratio smaller than said interlayer insulating film.

9. (currently amended) The magnetic memory according to claim 1, further comprising:

an interlayer insulating film formed to cover said lower portion structure of said magnetic element and said sidewall insulating film, ~~and~~

~~said sidewall insulating film is formed of a material which has a selection ratio in a chemical mechanical polishing or an etching back smaller than said interlayer insulating film.~~

10. (previously presented) The magnetic memory according to claim 1, wherein said sidewall insulating film is formed of at least one of metal nitride, metal oxide, and metal carbide.

11. (previously presented) The magnetic memory according to claim 1, wherein said sidewall insulating film comprises at least one of silicon oxide, silicon nitride, aluminum oxide, and aluminum nitride.

12. (previously presented) A method of manufacturing a magnetic memory comprising:

forming a multi-layer film included in a magnetic element on or above a substrate;

etching said multi-layer film into a predetermined pattern up to a predetermined depth, to form an upper portion structure of said magnetic element;

forming a sidewall insulating film to surround said upper portion structure of said magnetic element;

etching a remaining portion of said multi-layer film by using said sidewall insulting film and said upper portion structure of said magnetic element as a mask to form a lower portion structure of said magnetic element.

13. (previously presented) The method according to claim 12, wherein said forming a multi-layer comprises:

forming a conductive film and a first magnetic layer formed on or above said conductive film in a portion corresponding to said lower portion structure of said magnetic element;

forming an insulting layer and a second magnetic layer formed on or above said insulating layer in a portion corresponding to said upper portion structure of said magnetic element.

14. (previously presented) The method according to claim 12, wherein said etching said multi-layer film into a predetermined pattern, comprises:

etching said multi-layer film into said predetermined pattern by using a physical etching.

15. (original) The method according to claim 14, wherein said physical etching is ion milling.

16. (previously presented) The method according to claim 12, wherein said forming a multi-layer comprises:

forming a conductive film in a portion corresponding to said lower portion structure of said magnetic element; and

forming a first magnetic layer; an insulating layer formed on or above said first magnetic layer; and a second magnetic layer formed on or above said insulating layer in a portion corresponding to said upper portion structure of said magnetic element.

17. (previously presented) The method according to claim 16, wherein each of said etching a remaining portion of said multi-layer film is carried out by using a physical and chemical etching.

18. (previously presented) The method according to claim 17, wherein said physical and chemical etching is a reactive ion etching.

19. (currently amended) The method according to claim 12, further comprising:

forming an interlayer insulating film to cover said lower portion structure of said magnetic element, said sidewall insulating film, and said upper portion structure of said magnetic element;~~and~~

~~forming a via hole in said interlayer insulating film so as to be connected with said upper portion structure of said magnetic element by an etching method,~~

~~said sidewall insulating film is formed of a material which has an etching selection ratio smaller than said interlayer insulating film.~~

20. (previously presented) The method according to claim 12, further comprising:

forming an interlayer insulating film to cover said lower portion structure of said magnetic element, said sidewall insulating film, and said upper portion structure of said magnetic element; and

flattening said interlayer insulating film on said upper portion structure of said magnetic element by a chemical mechanical polishing method or an etching-back method,

said sidewall insulating film is formed of a material which has a selection ratio in the chemical mechanical polishing method or the etching-back method smaller than said interlayer insulating film.

21. (new) The magnetic memory according to claim 9, wherein said sidewall insulating film is formed of a material which has a selection ratio in a chemical mechanical polishing or an etching-back smaller than said interlayer insulating film.

22. (new) The method of manufacturing a magnetic memory of claim 19, further comprising:

forming a via-hole in said interlayer insulating film so as to be connected with said upper portion structure of said magnetic element by an etching method.

23. (new) The method of claim 22, wherein said sidewall insulating film is formed of a material which has an etching selection ratio smaller than said interlayer insulating film.

24. (new) The magnetic memory of claim 1, further comprising a wiring layer arranged to be in electrical contact with an upper surface of the upper portion.

25. (new) The method of claim 12, comprising the further step of:

with the sidewall insulating film in place, forming a wiring layer that is in electrical contact with an upper surface of the upper portion.